Tennessee Pollution Prevention Partnership Success Story

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Production Efficiency Equals Waste Reduction

The Member

DENSO Manufacturing Athens Tennessee, Inc. (DMAT), is part of DENSO Corporation's global network of 74 subsidiaries in 29 nations and the third largest producer of advanced technology, components, and systems for all major automakers. DMAT employs approximately 900 associates. Automotive components and systems produced at the DMAT include the following: oxygen sensors, fuel injectors, fuel rails, air-flow meters, ignition coils, monolithic carriers and spark plugs.

The Story – Increase production efficiency & reduce material usage

DENSO began manufacturing ignition coils in 2000. An ignition coil is an integrated igniter that provides advanced spark-timing control.

The ignition coil production process includes epoxy potting and curing. An employee continuous improvement team, or kaizen team, in the potting and curing area investigated causes of long production downtime in their area. Long downtime reduces production efficiency and increases overtime.

The team determined that excessive periods of downtime were the result of long startup time in potting. It took associates over 3 hours to start the potting process each week due to the amount of time necessary to bleed the epoxy lines to ensure there is not any air in the epoxy lines. The potting process generates a large volume of epoxy waste.

New Idea

The Kaizen Team began by investigating the method of bleeding the epoxy lines. The team worked with Production Maintenance to modify the epoxy drain line in order to reduce the amount of time required to drain the epoxy. The team then focused on reducing the amount of epoxy that needed to be drained. The team worked with Production Engineering and Quality Assurance to determine what was the least amount of epoxy that needed to be drained in order to ensure the epoxy lines were free of air.

The Success

The team was able to reduce the amount of epoxy bled from the system by 75% without a negative impact to the production process. This reduced the start-up time by 41% and associated expenses by 54%. This project saved over $10,500 in new chemical costs each year. This project is a good example of teamwork, employee innovation, and overall commitment to prevent pollution. The results of this project were shared with Denso facilities, with similar potting processes, in Spain, Japan and Indonesia.

Pollution Prevented

The modified startup procedure prevented the generation of over 4 tons of waste epoxy each year.